U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-261 554-T

Arsenic Poisoning Due to Moringa M.F. Dried Milk

Environmental Protection Agency, Research Triangle Park, N C

1955

BIBLIOGRAPHIC DATA SHEET	1. Report No. EPA TR74-114	2.	PB 261 554-T

4. Title and Subtitle: Arsenic poisoning due to Moringa M.F. dried milk.

5. Report Date: 1955

6.

7. Author(s): N. Kitamura and T. Kasuyama

8. Performing Organization Rept. No.

9. Performing Organization Name and Address: TRANSLATED FROM JAPANESE BY EPA

10. Project/Task/Work Unit No.

11. Contract/Grant No.

12. Sponsoring Organization Name and Address: Translation Service
Office of Administration - Library
Research Triangle Park, NC
27711

13. Type of Report & Period Covered

14.

15. Supplementary Notes: OKAYAMAKEN EISEI KENKYUJO NENPO, (6), 1955

16. Abstracts

17. Key Words and Document Analysis. 17a. Descriptors

EPAISD

17b. Identifiers/Open-Ended Terms

TRACE ELEMENTS - HEALTH EFFECTS

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

17c. COSATI Field/Group 06T 57Y

18. Availability Statement: THIS TRANSLATION WAS MADE FROM A NON-COPYRIGHTED TEXT.

1

19. Security Class (This Report) UNCLASSIFIED

21. No. of Pages 4

20. Security Class (This Page) UNCLASSIFIED

22. Price 3.50

USCOMM-DC 40329-P71

362024

EPA- TR-114-74

MORINAGA DORAI MIRUKU M.F. NI YORU HISO CHUDOKU NI TSUITE
[ARSENIC POISONING DUE TO MORINAGA M.F. DRIED MILK]
M.F. Jirushi Funnyu Chu No Hiso Ganyuryo Ni Tsuite
[(1) Arsenic Content in M.F. Dried Milk]

N. Kitamura and T. Kasuyama

Okayamaken Eisei Kenkyujo Nenpo, (6), 1955

Translated for EPA by
SCITRAN (SCIENTIFIC TRANSLATION SERVICE)
SANTA BARBARA, CALIFORNIA

(4)

ARSENIC POISONING DUE TO MORINAGA M.F. DRIED MILK

(1) Arsenic Content in M.F. Dried Milk

Naoji Kitamura and Toshiaki Kasuyama

To find the cause of the mysterious disease among artificially fed infants, which has been studied in both the medical and pharmaceutical fields since late June, 1955, we at the Hygienic Laboratory of Okayama Prefecture started in August 24 to test M.F. 5519, which had been taken by the infants hospitalized at our hospital, based on the suspicion, voiced by the head physician of the Pediatrics Department of National Okayama Hospital on August 22, 1955, that Morinaga M.F. dried milk caused this disease. It was not evident from the preparatory Reinsch reaction test, but, using the Gutzeit method, a large amount of arsenic in this dried milk was recognized. As a result of the determination, 2.5-2.8 mg of AS_2O_3 per 100 g of M.F. 5519 were detected. Also, from 100 mg each of M.F. 5515, 5516, and 5806, obtained directly from Morinaga Milk Industry's Osaka branch office, 1.8 mg, 2.4 mg, and 2.6 mg, respectively, were detected. On the other hand, by the order of the Public Health Section of Okayama Prefecture, M.F. dried milk as well as the related dairy products were recalled and collected by the Hygienic Laboratory of Okayama Prefecture as of August 25. M.F. products were separated by the manufactured date and the testing conducted. There was a total of 59 cases. Simultaneously, the testing was immediately conducted on 13 cases of Morinaga M.L. products, 2 cases of Morinaga M.C. products, as well as 28 cases of dairy products by other companies such as Meiji, Hokkaido Butter, and Yukijirushi.

The arsenic content in M.F. products, which differed depending on the manufactured date, was quite scattered, as shown in Table 1. For example, it was 4-5 mg/100 g on April 25, 2.3 mg on April 13, 3.2 mg on April 21, 2.7 mg on May 2, none from May 6 to May 11, 5-6 mg in late May, 2.5 mg-4 mg

in June, none from June 29 to August 1, and again 2.6 mg on August 6. The most recently obtained one, made on August 13, also contained arsenic.

If these points in Table 1 are connected by a solid line to show the ups and downs of the arsenic content, a rapidly-fluctuating complex curve results, as shown in Table 2. The problem here is that we can not determine whether this fluctuation is caused by the quality of the secondary sodium phosphate for industrial use, reported to be mixed in during the manufacture of milk, or by the difference in the location obtained, or by the amount of use. If it is true, as has been rumored, that sodium phosphate was added by eye measurement because the scale was broken, then it is extremely unscientific, and the responsibility for inadequate quality control cannot be avoided. Next, if we consider only the existence of arsenic in M.F. dried milk, then, as shown in Table 3, it is negative on April 11, but becomes positive on April 13. Arsenic is contained during 23-24 days from April 12 or April 13 to May 5, but not during 6-7 days between May 6 and May 11 or May 12. During 40-48 days between May 12 or May 13 and June 21 or June 28, it is contained, but again from June 29 to August 1, it is negative. On August 6, it is positive. Thus, during 34-45 days between June 22 or June 29 and August 1 or August 5, arsenic is not contained. From August 2 or August 6 to the day the problem surfaced, arsenic is presumed to be contained. In other words, it may be assumed that between April 11 and August 13, arsenic was contained in 71-84 days, but not in 40-52 days. Whether the secondary sodium phosphate was used or not, or whether the secondary sodium phosphate was of poor quality for industrial use or of good quality for chemical use will probably become evident later. In any event, it is morally inexcusable that such a poison was mixed in dried milk, upon which depends the life of helpless infants. Dried milk should be made with the same kind of umlimited love and devotion as that of the mother toward her infant. To the manufacturers and others who were responsible, we strongly hope for sufficient measures so that this kind of incident will never be repeated.

The substance of this paper was presented at the first Chugoku Chiku Koshu Eisei Gakukaioin November, 1955.

Sincere gratitude is extended to the Hygienic Department head Omori, the Public Health Section manager Iwasaki, and subsection manager Shimazaki, as well as other members of the Hygienic Laboratory who have encouraged and helped us.

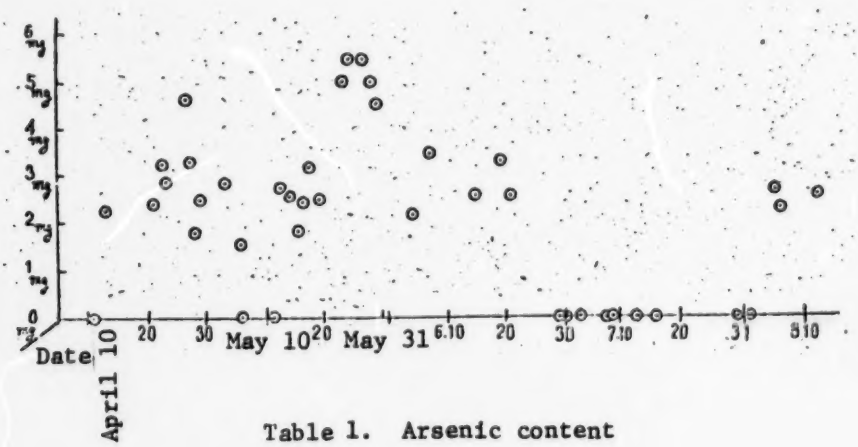

Table 1. Arsenic content

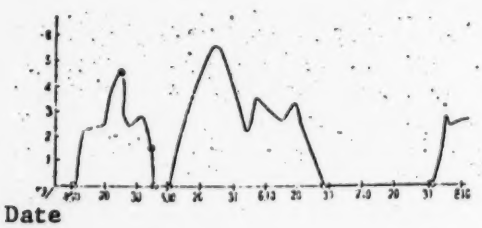

Table 2. Arsenic content curve

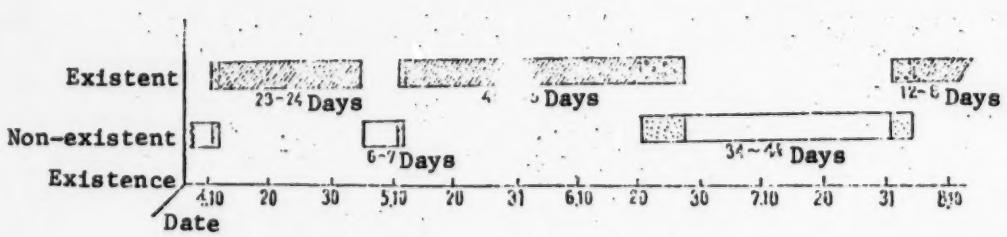

Table 3. Existence of arsenic by day

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